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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,954

06/10/2008

Min-Woo Lee

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EXAMINER

JACOBS, TODD D

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

05/12/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/572,954	<b>Applicant(s)</b> LEE, MIN-WOO	
	<b>Examiner</b> TODD D. JACOBS	<b>Art Unit</b> 3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 15-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

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### DETAILED ACTION

This Office Action is in response to the entry dated 4/19/2011 and considers all proposed amendments/arguments.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 15-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 states that the spring's mass part has "zero pitch" yet because the coils have some thickness, and pitch is defined to be the measurement from the center of the coils between adjacent rounds, the pitch of the instant application is not zero. Instead, for the purposes of this examination, it will be interpreted that the mass part has a very small pitch.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hagg et al (3,058,705) in view of Inoue (7,249,937).

6. In re claim 1, Hagg discloses:

- a casing (casing 8 and lower casing as well);
- a compressor main body positioned in the casing (10), compressing fluid,

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- a supporting unit (12) that includes a plurality of coil springs (17, 18) connecting the compressor main body to the casing, plurality of coil springs includes end coils tightly wound (upper-most and lower most rounds) so as to be fixed to one surface of the compressor main body and to one surface of the casing, respectively, including tightly wound upper/lower ends and a mass part (lower half of 18 which has minimal pitch) wherein a first/second elastic part are connected to the mass part (17, upper half of 18) wherein the pitch of the first elastic part and the pitch of the second elastic part are different at corresponding round numbers moving away from the mass part (this is because of the interpretation that the first elastic part starts at 17 and the second elastic part starts in the middle of 18; see below for an alternative interpretation).
- However, Hagg does not give details of its pumping arrangement and may not disclose a suction/discharge pipe as well as a linear reciprocating piston doing the pumping. Nevertheless, Inoue discloses these items (see compressor 2). This is a known efficient method of pumping that would increase the efficiency of Hagg. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Hagg in view of Inoue by using the piston and ports of Inoue in the apparatus of Hagg. Note also that one might disagree that Hagg's tightly wound portions, as discussed above, are tightly wound. However, Inoue discloses multiple rounds of a spring very tightly wound on the ends that connect to the compressor and compressor casing. This allows a better connection for the spring. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Hagg/Inoue by adding tight rounds to the ends of the springs as discussed above in order to give a sturdy spring connection.

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7. Claims 1, 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagg/Inoue in further view of either Watanabe (6,193,225), Takamura et al (5,246,215), or Kato (6,273,396).

8. In re claims 1, 15-21, Hagg/Inoue discloses the invention as discussed above however one may disagree that it discloses wherein the first/second elastic parts are different at corresponding rounds of the springs (this is under an alternate interpretation that all of Hagg 18 is the mass part, and each of Hagg17 are the first/second elastic parts):

9. Nevertheless, various prior art discloses parts of one spring having a certain pitch and parts of the same spring having a different pitch. See Takamura Figs 9, 11 or 12 where the pitch increases constantly in one direction; see Kato Fig 3C where the pitch on either end of a central section are different; see Watanabe Fig 5 wherein parts A and B have different pitches. These offer varying characteristics that may be useful under some circumstances, depending on the type of spring reaction is wanted. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Hagg/Inoue in view of Watanabe, Takamura or Kato by adjusting the springs as suggested above in order to achieve the advantages discussed above. Further, note that there are two ways of using each of Takamura, Watanabe and Kato; first, one could use these teachings to show a general decrease or increase from the very top end of the spring to the very bottom end of the spring; second, one could use these teachings to show a general increase/decrease on each end of the mass part. Further, note that it would have been further obvious to try other obvious variants of such an arrangement. Changing the pitch at certain locations is not a criticality in the instant application and one, during experimentation, knowing the teachings of Inoue, Takamura, Kato and Watanabe would have found it obvious to try various pitches at various parts of the spring device to further customize the apparatus and achieve the spring response wanted. Claims 15-

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21 are specifically rejected because as shown above, the above applied prior art discloses wherein the pitches of each spring side are "regular" yet different; wherein the pitches are increasing or decreasing towards the mass part at (different) increasing or decreasing ratios; wherein one spring part has regular pitches that are constant and the other spring part has increasing/decreasing pitches.

#### ***Related Art***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Borlinghaus (4,077,619) and Powers (1,963,054) disclose springs with varying pitches.

#### ***Response to Arguments***

11. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to TODD D. JACOBS whose telephone number is 571-270-5708. The examiner can normally be reached on Monday - Friday, 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/  
Primary Examiner, Art Unit 3746

/TODD D. JACOBS/  
Examiner, Art Unit 3746